Appl. No. 10/796,358 Amdt. dated August 21, 2007

Reply to Office Action of May 31, 2007

This listing of claims replaces all prior versions, and listings of claims in the instant application:

## Listing of Claims:

(Currently amended) A method comprising:

stalling a heap allocation function call to a heap allocation function originating from a request by an application for a block of heap buffer;

predicting a predicted block of said heap buffer to fulfill said request, said predicted block comprising a header portion and a data portion reserved for data; and

determining if a forward link (F-link) in a F-link field and a backward link (B-link) in a B-link field of said header portion of said predicted block are addresses within a heap segment associated with said predicted block.

- 2. (Original) The method of Claim 1 further comprising hooking said heap allocation function.
- 3. (Original) The method of Claim 1 further comprising determining a size of said block.
- 4. (Original) The method of Claim 3 wherein said predicted block has said size.
- 5. (Original) The method of Claim 3 wherein a freelist comprises a plurality of free blocks having said size, said predicted block being on said freelist.
- 6. (Original) The method of Claim 1 wherein said predicted block is on a predicted freelist.

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- 7. (Original) The method of Claim 6 further comprising determining whether a F-link of a predicted list head of said predicted freelist points into said heap segment.
- 8. (Original) The method of Claim 6 further comprising determining whether a B-link of a predicted next block of said predicted freelist points into said heap segment.
- 9. (Original) The method of Claim 1 wherein upon a determination that said F-link and said B-link of said predicted block are not addresses within said heap segment, said method further comprising taking corrective action.
- 10. (Original) The method of Claim 9 wherein said taking corrective action comprises setting said F-link and said B-link to be an address of a list head of a freelist comprising said predicted block.
  - 11. (Currently amended) A method comprising:

stalling a heap deallocation function call to a heap deallocation function originating from a release by an application of a block of heap buffer, wherein said block is a deallocation block that is being deallocated to a deallocation freelist; and

determining if a forward link (F-link) in a F-link field of a header portion of a list head of said deallocation freelist and a backward link (B-link) in a B-link field of a header portion of a first block of said deallocation freelist are addresses within a heap segment associated with said deallocation freelist, said first block further comprising a data portion reserved for data.

12. (Original) The method of Claim 11 further comprising reading said F-link and said B-link.

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- 13. (Original) The method of Claim 11 further comprising hooking said heap deallocation function.
- 14. (Currently amended) The method of Claim 11 further comprising determining said block being released by said application.
- 15. (Original) The method of Claim 11 wherein upon a determination that said F-link and said B-link are addresses within said heap segment, said method further comprising releasing said heap deallocation function call.
- 16. (Original) The method of Claim 11 wherein upon a determination that said F-link or said B-link are not addresses within said heap segment, said method further comprising taking corrective action.
- 17. (Original) The method of Claim 11 wherein said F-link or said B-link is a stray F-link or stray B-link, said method further comprising determining if said stray F-link or stray B-link is a known false positive.
- 18. (Original) The method of Claim 11 further comprising determining if said block is to be coalesced with other free blocks.
- 19. (Original) The method of Claim 11 wherein said block is to be coalesced with a coalesced block, said method further comprising:

determining if a F-link and a B-link of said coalesced block are addresses within a heap segment associated with said coalesced block.

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20. (Original) The method of Claim 19 further comprising determining if there are other blocks to be coalesced with said block.

## 21-24. (Canceled)

25. (Currently amended) A computer-program product comprising a <u>tangible</u> computer-readable medium containing computer program code comprising:

a heap buffer overflow exploitation prevention application for stalling a heap allocation function call to a heap allocation function originating from a request by an application for a block of heap buffer;

said heap buffer overflow exploitation prevention application further for predicting a predicted block of said heap buffer to fulfill said request, said predicted block comprising a header portion and a data portion reserved for data; and

said heap buffer overflow exploitation prevention application further for determining if a forward link (F-link) in a F-link field and a backward link (B-link) in a B-link field of said header portion of said predicted block are addresses within a heap segment associated with said predicted block.